

2019 ENVIRONMENTAL  
SCAN

# Graduates in the Economy



COLLEGES | COLLÈGES  
ONTARIO | ONTARIO

# Graduates in the Economy

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# Ontario college graduates: Competing in a disruptive world economy

## 1 INTRODUCTION AND SUMMARY

Employer-focused post-secondary education remains an excellent investment for both individuals and governments.

Over the past quarter century, rising Ontario employer skill requirements have led to over 1,100,000 more jobs for those adults ages 15 to 44 with post-secondary credentials.

Meanwhile, there has been a drop of 850,000 jobs for adults in that age group that don't have post-secondary credentials. In every sector, young adults who don't have a post-secondary education are having more difficulty getting hired.

College graduates continue to provide Ontario with a key competitive advantage over the U.S.

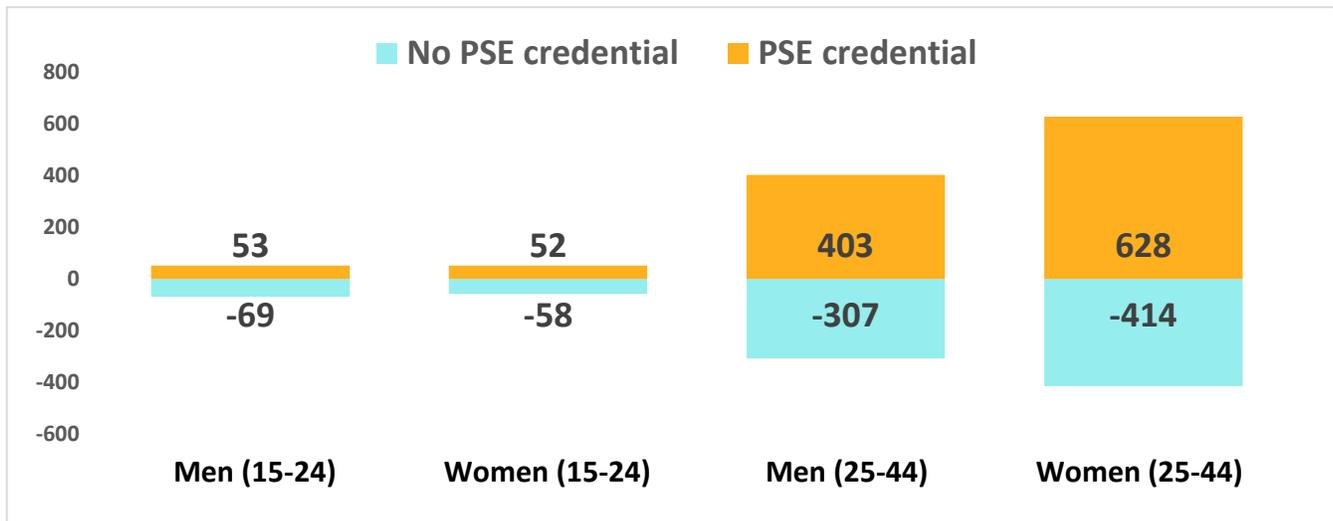
However, access to degree programs and to careers continues to be challenging for under-represented groups, including Indigenous Peoples and those with disabilities. Recent immigrants also experience difficulties finding jobs, especially if their mother tongues are not English or French.

As well, Canada provides much less employability skills training for adults with low literacy levels than do the Nordic countries, or even the U.S.A.

Canada, with only one per cent of the world's graduates, can maintain a high standard of living only if its graduates receive the highest quality education, incorporating innovation and entrepreneurship, along with state-of-the-art skills that ensure their employers are competitive in the world economy.

## 2 RISING ONTARIO EMPLOYER REQUIREMENTS FOR SKILLS

### 2.1 Ontario young adult employment shift towards post-secondary credentials



Note: Ages 15 to 24 and 25 to 44, thousands, 1990-2018.

Source: Statistics Canada Labour Force Survey, table 14-10-0020-01, annual unemployment rate, participation rate and employment rate by educational attainment.

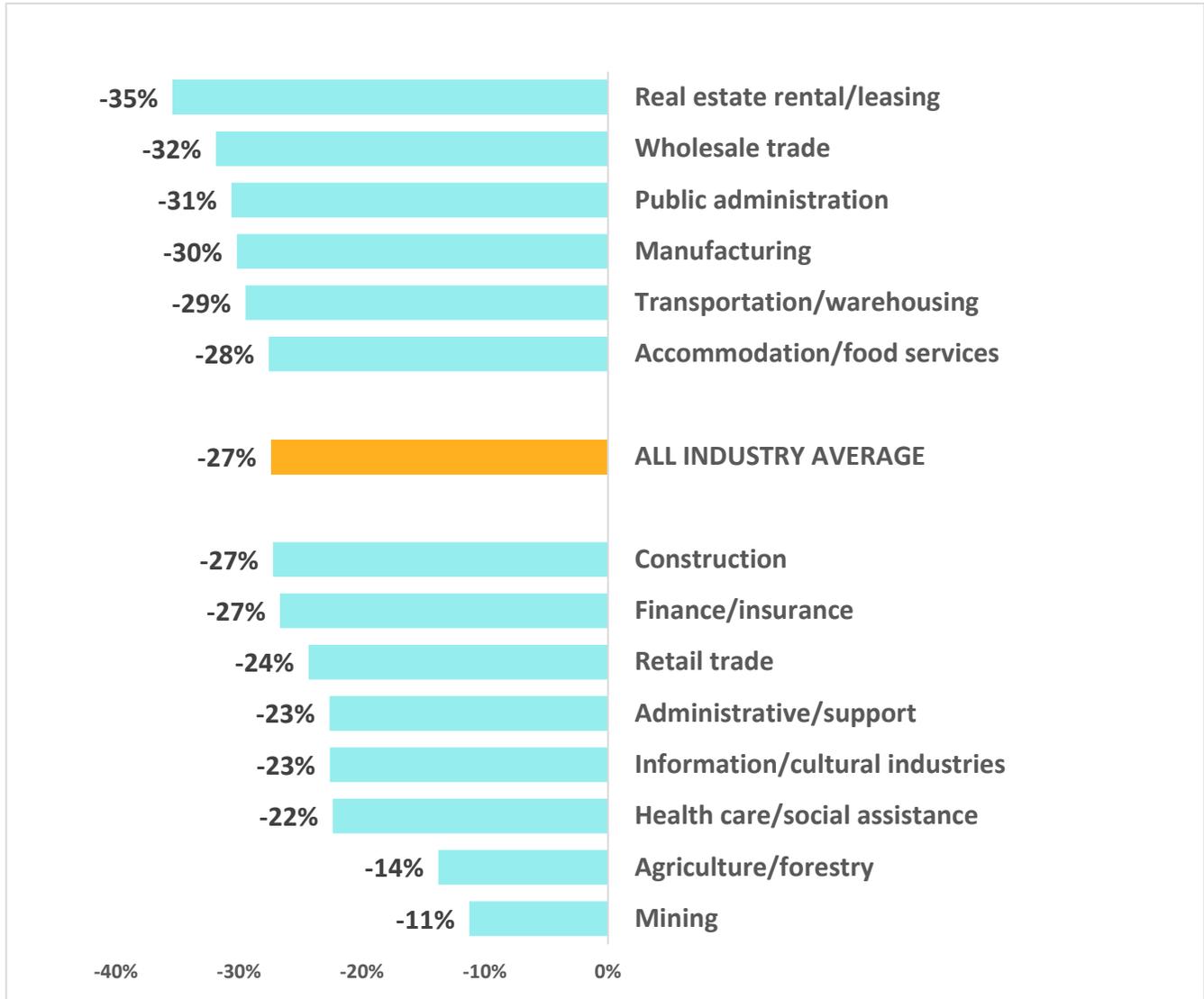
Prepared by Colleges Ontario.



Over the past quarter century, there has been considerable change in the educational attainment of Ontario's workforce, and that of many advanced economies.

Rising employer expectations have especially affected opportunities for young adults (ages 15 to 44). Compared to 1990, there has been a drop in Ontario alone of 850,000 jobs for those without post-secondary credentials, with an increase of over 1,100,000 jobs for those who have completed at least one post-secondary credential.

## 2.2 Ontario industry employment rates for young adults without post-secondary credentials



Note: Per cent employment change by industry, ages 25 to 34, thousands, 1990-2015.  
 Source: Statistics Canada Labour Force Survey, special tabulation.  
 Prepared by Colleges Ontario.

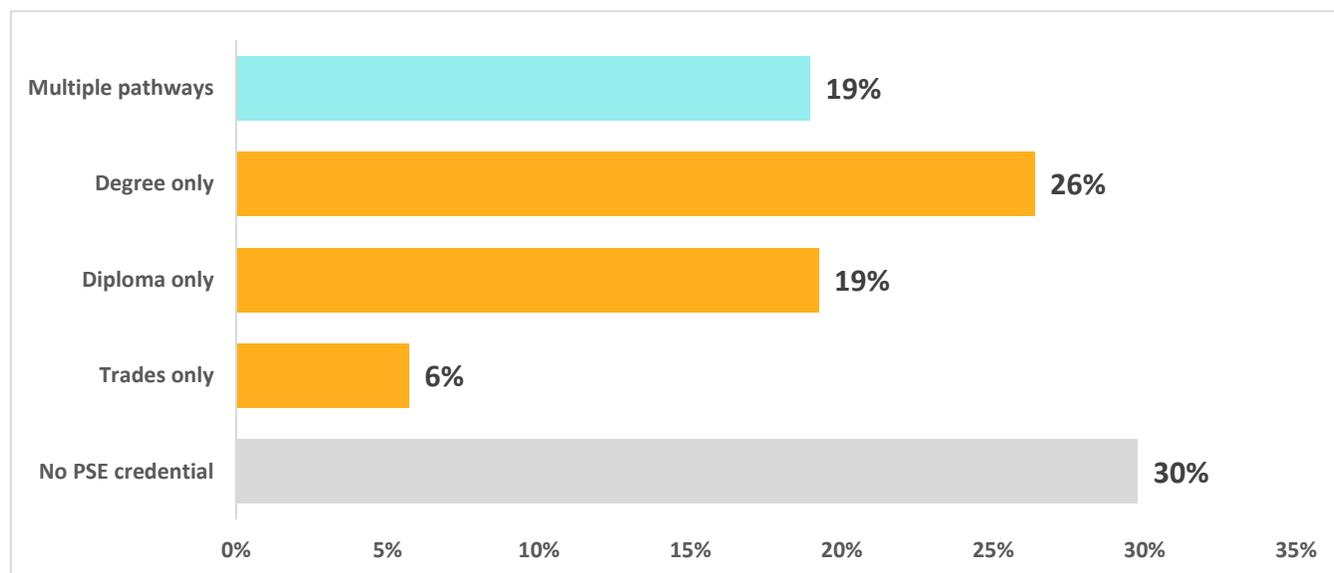


Every industry sector in Ontario is hiring fewer young adults (ages 25 to 34) without post-secondary credentials than 25 years ago.

On average, the drop is 27 per cent, with higher percentage declines in formerly traditional industries such as manufacturing, accommodation and food services.

### 3 MATCHING SKILLS TO EMPLOYER NEEDS: PATHWAYS, ENTREPRENEURSHIP, INNOVATION

#### 3.1 Young adults with post-secondary credentials from multiple pathways



Note: Ages 25 to 34.

Source: Colleges Ontario, based on a special tabulation of a 2011 Statistics Canada National Housing Survey.  
Prepared by Colleges Ontario.

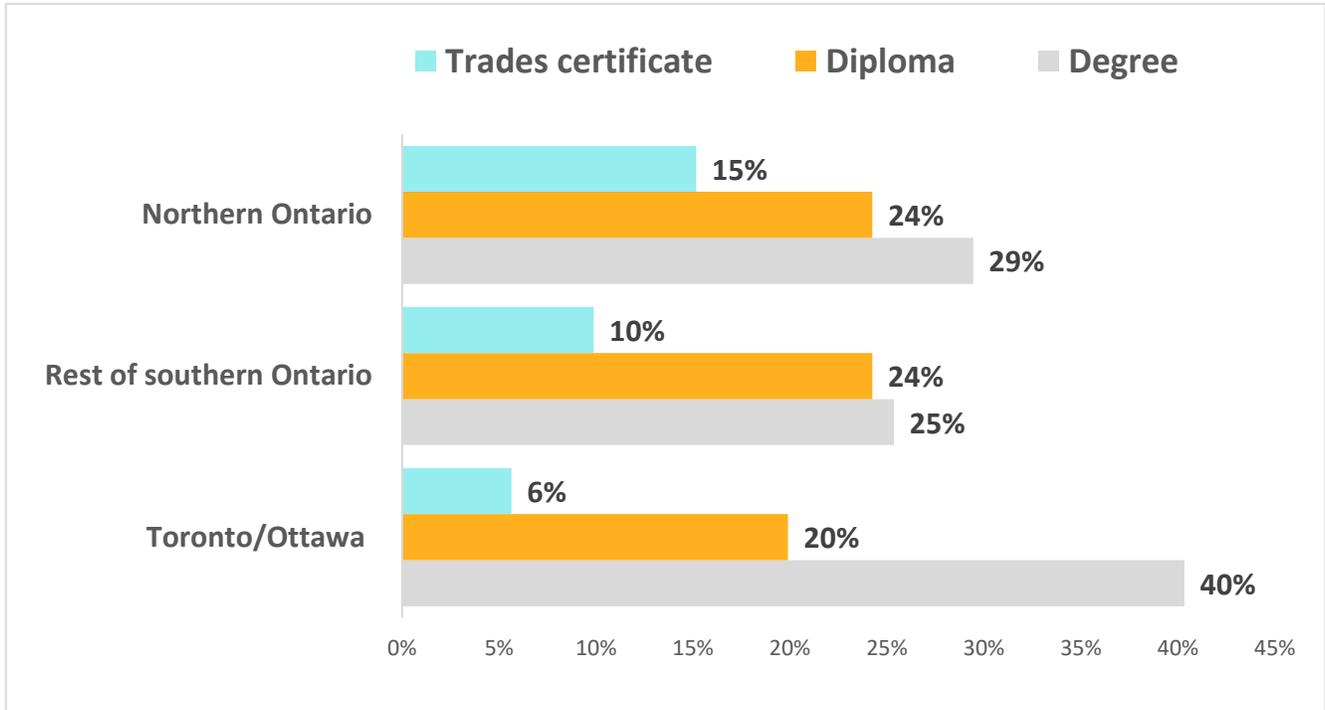


Due to the quickly changing skills requirements of Ontario employers, colleges offer about 200 new or substantially revised programs each year.

Since 2002 (when colleges were granted the ability to offer honours degree programs), the number of specialized college honours degree programs needed by employers has grown to well over 100. Examples of those programs include software development; accounting, audit and information technology; community mental health; craft and design (specialty in furniture) and paralegal studies.

As well, one-fifth of Ontario post-secondary students select multiple pathways, such as obtaining both a diploma and a degree, or a combination of a degree and an employer-approved post-graduate certificate.

### 3.2 Ontario entrepreneurs with post-secondary credentials



Note 1: "Self-employed" includes only those with employees.

Note 2: Per cent of total self-employed, 2016.

Source: Based on a 2016 Statistics Canada Census special tabulation.

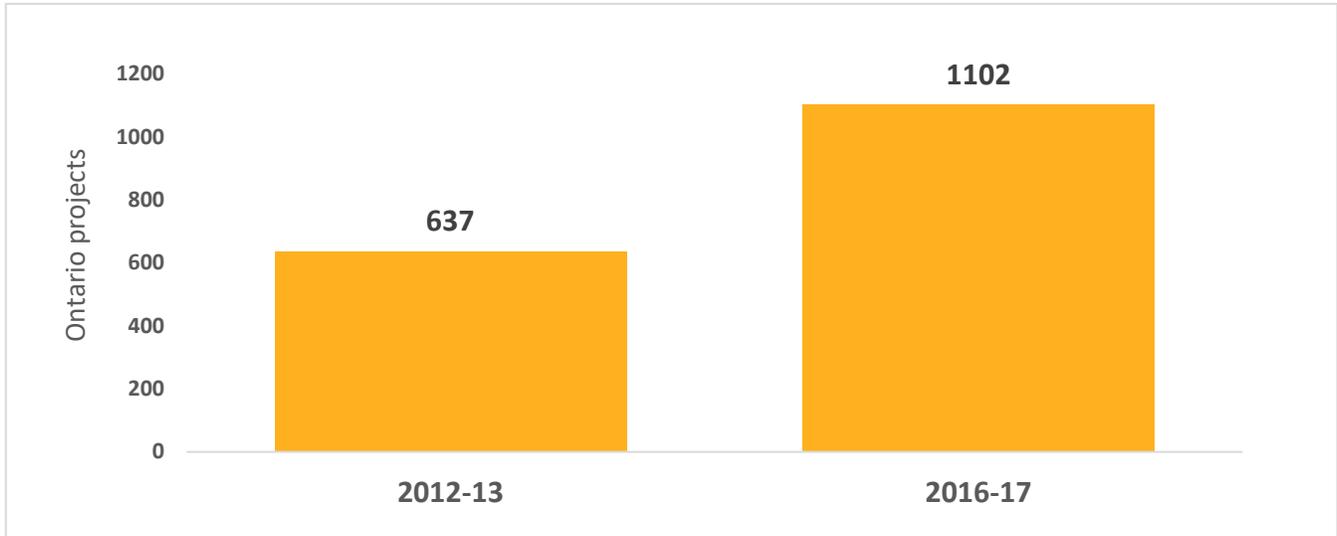
Prepared by Colleges Ontario.



About five per cent of employed Ontarians are entrepreneurs with employees, and another seven per cent are self-employed without employees.

The educational attainment of entrepreneurs with employees tends to vary by the size of the community.

### 3.3 Ontario college applied research projects



Source: Colleges and Institutes Canada, annual survey of applied research.  
Prepared by Colleges Ontario.

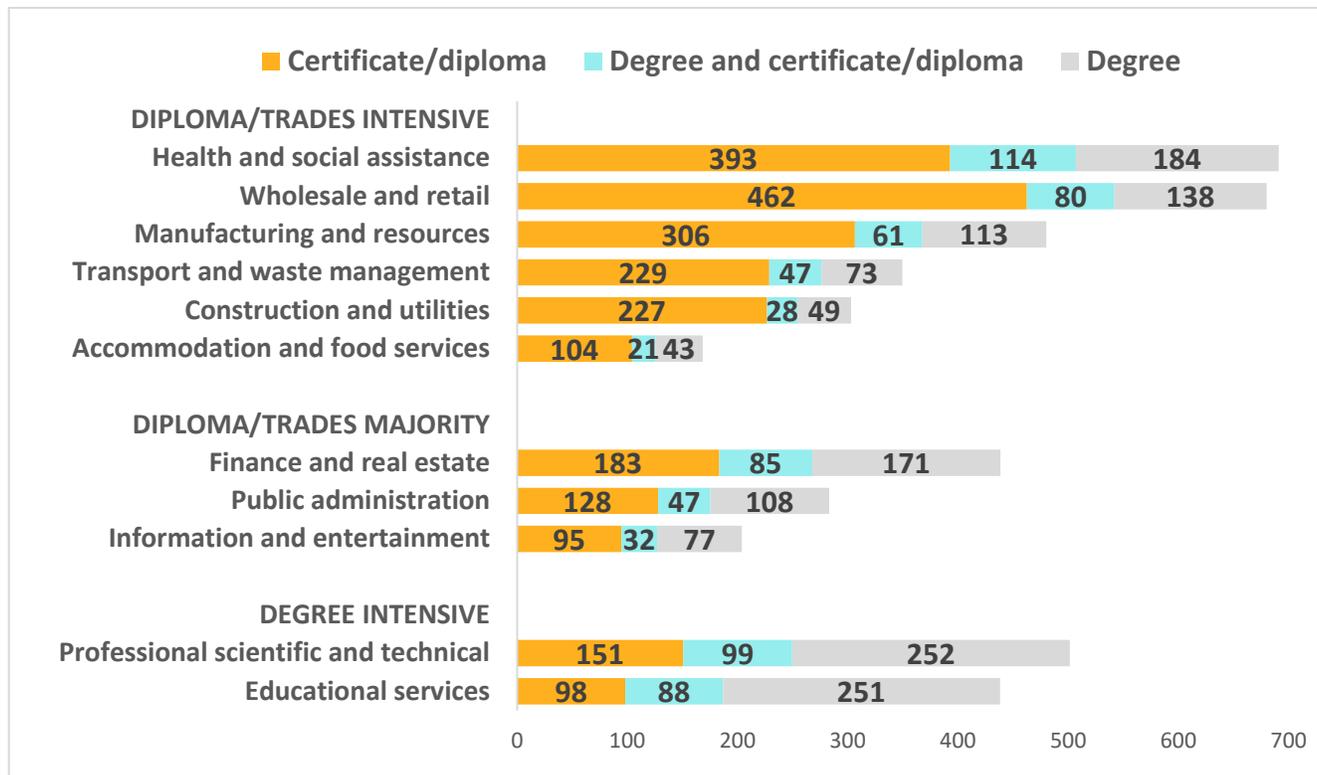


Colleges are a valuable asset to Ontario’s innovation ecosystem as they offer businesses the innovative thinking, expertise and technology needed to become more competitive in a challenging global economy. College applied research is focused on client-driven requirements to innovate in order to improve the businesses’ competitive positions through improved products and production.

Over the past four years, applied research at Ontario’s colleges has grown quickly.

The number of clients in 2016-17 was up as over 70 per cent from 2012-13, to 1,100. Of those 1,100 clients, 17 per cent were ‘micro-sized,’ 57 per cent were small companies, seven per cent were large companies and the remaining clients included non-profits, international groups and government.

### 3.4 Post-secondary graduates employed in Ontario industries



Note: Thousands of jobs, 2015.

Source: Based on special tabulations of the 2015 Statistics Canada Labour Force Survey and the 2011 National Housing Survey.

Prepared by Colleges Ontario.



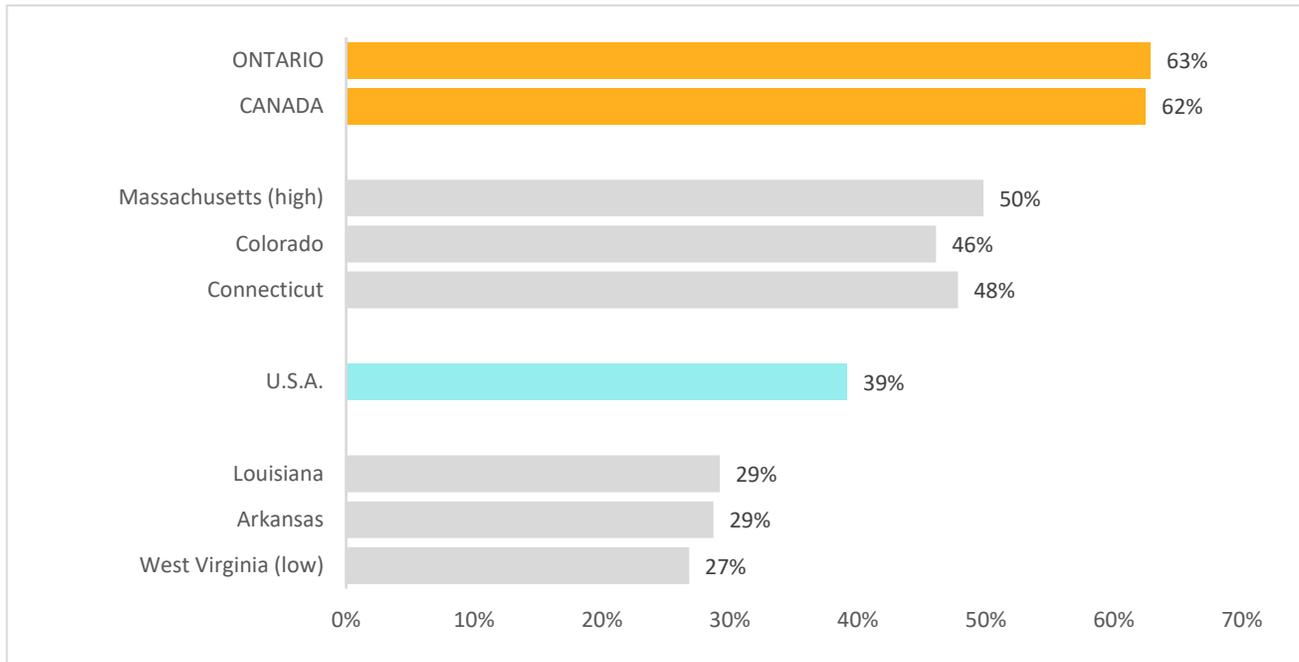
Ontario’s college diploma and trades graduates play a critical role in export industries (manufacturing, resources and tourism); electric power generation and transmission; infrastructure; real estate; insurance; and health care. A recent survey of more than 1,500 employers that employ 13.5 per cent of Ontario’s workforce found that “smaller firms (one to 19 employees) have the greatest need for two- or three-year college diplomas, followed by trades and four-year degrees.”<sup>1</sup>

The broader public sector (educational services, health and social services, and public administration) and the professional, scientific and technical services sector each employ twice the concentration of people with degrees as compared with the private sector.

<sup>1</sup> The Conference Board of Canada, The Need to Make Skills Work: The Cost of Ontario’s Skills Gap, 2013, Page 20.

## 4 ONTARIO'S COLLEGE GRADUATE ADVANTAGE COMPARED TO THE U.S.

### 4.1 Adults with post-secondary credentials



Note: Population 25 years and older.

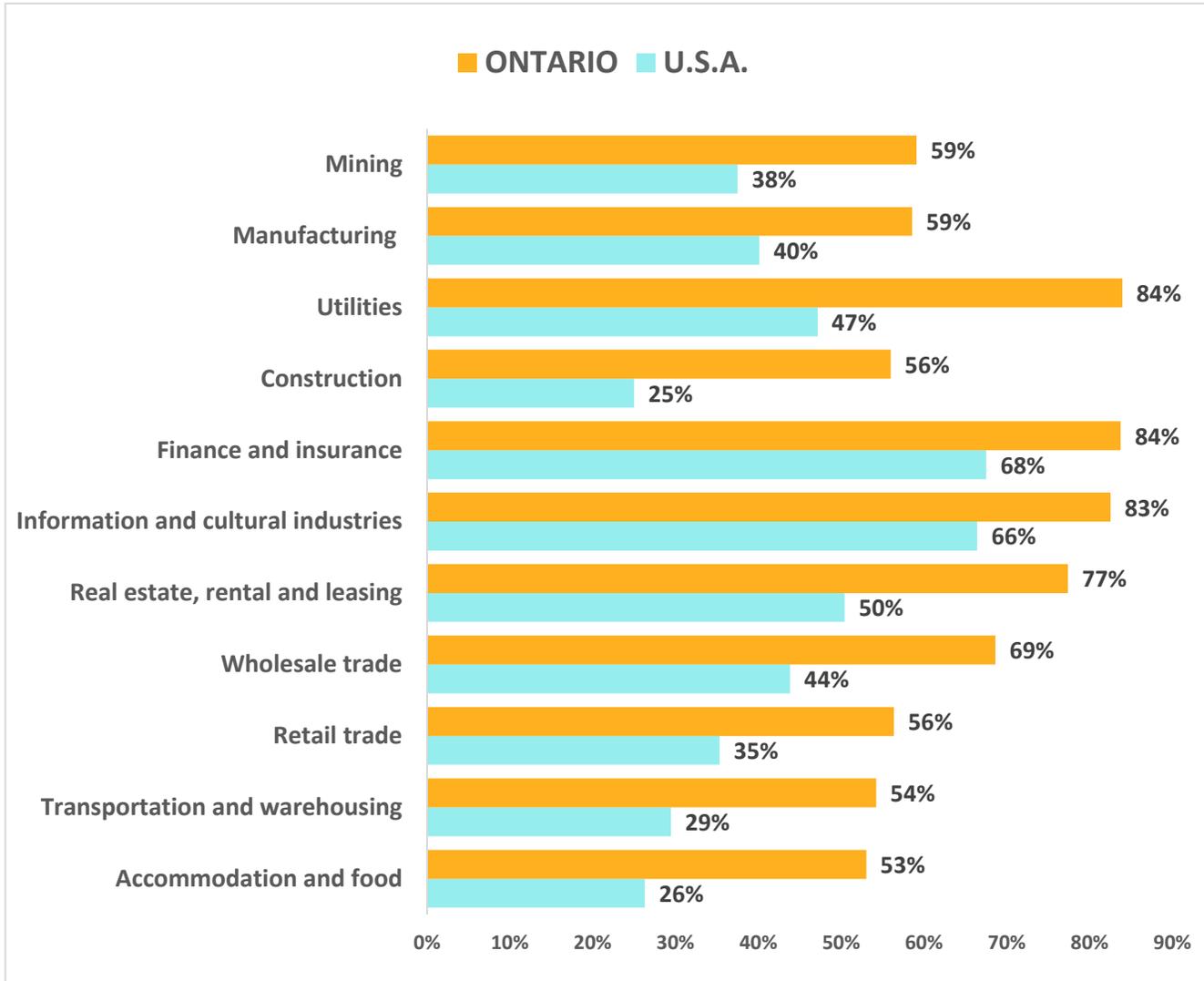
Sources: U.S. Census Bureau, 2013-2017 American Community Survey Table S1501, 5-Year Estimates and Statistics Canada, table 14-10-0020-01, annual unemployment rate, participation rate and employment rate by educational attainment.

Prepared by Colleges Ontario.



Ontario's educational attainment compares well with the U.S. average. However, there is huge variation by state.

## 4.2 Post-secondary graduates as a share of Ontario/U.S. industry sectors



Sources: U.S. Bureau of Labor Statistics, table 13, employed persons by detailed industry and educational attainment (25 years and over), annual average (2015 Current Population Survey) and a special tabulation of the 2015 Statistics Canada Labour Force Survey.  
Prepared by Colleges Ontario.

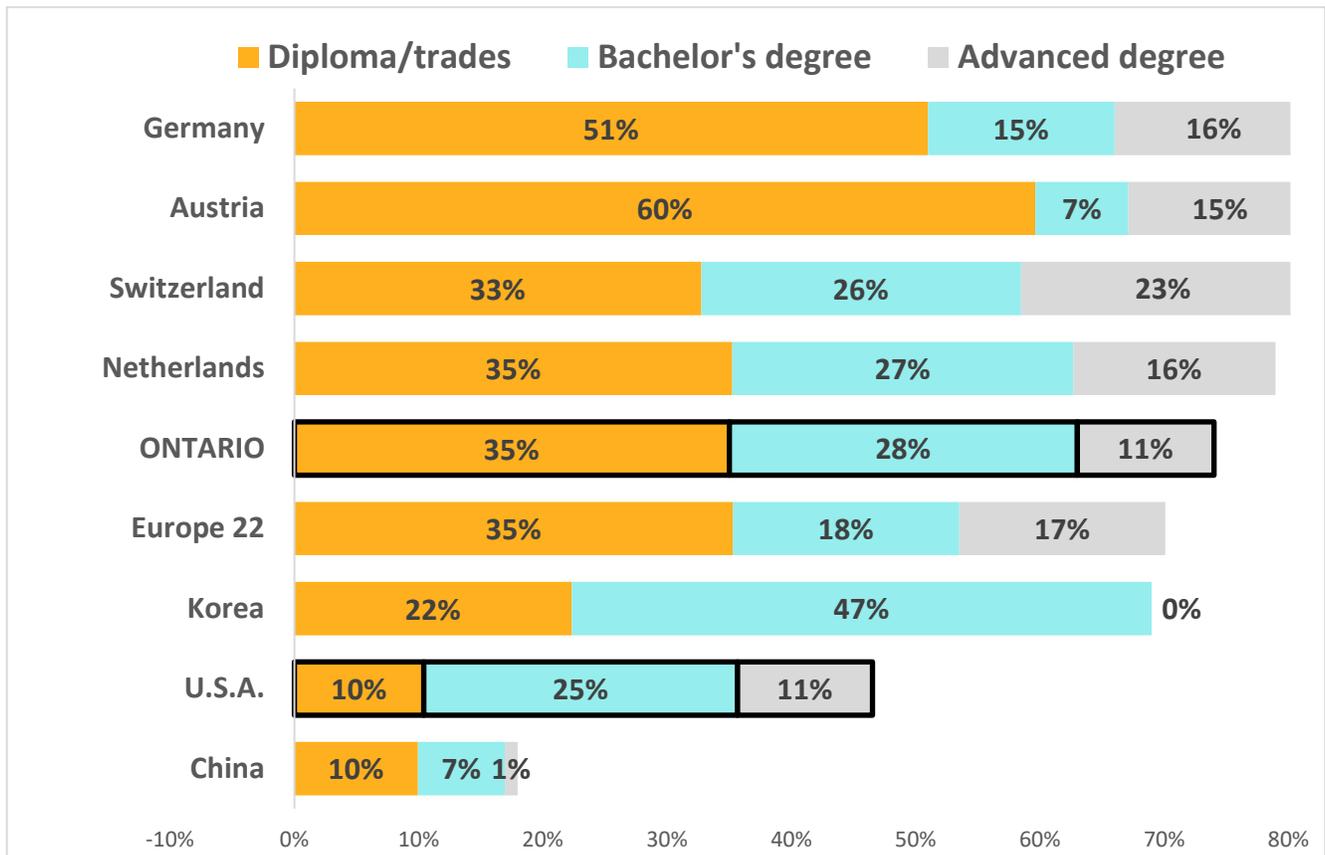


Ontario’s strong post-secondary education system – and especially its employer-oriented colleges – enables every Ontario industry to employ a significantly more skilled workforce than its counterpart industry in the U.S.

Ontario manufacturers employ 19 percentage points more post-secondary graduates (i.e., 59 per cent in Ontario vs. 40 per cent). Ontario information and cultural industries employ 17 percentage points more post-secondary graduates, and in finance and insurance it is 16 percentage points more.

## 5 INTERNATIONAL COMPETITIVENESS: THE QUALITY IMPERATIVE

### 5.1 Young adults with post-secondary credentials: Ontario and selected countries



Note 1: Selected jurisdictions, ages 25 to 34, 2017.

Note 2: Diploma/trades includes both OECD-defined “post-secondary non-tertiary and vocational” (mainly apprenticeship programs) and “short-cycle tertiary programs” (mainly two- to three-year diplomas).

Sources: Education at a Glance 2018: OECD Indicators, OECD Publishing, Paris, table A1.2, percentage of adults who have attained tertiary education, by type of program and age group (2015) and table A1.4, educational attainment of 25 to 34 year-olds, by programme orientation (2015); and Colleges Ontario estimates adjusted from a special tabulation of the 2014 Statistics Canada Labour Force Survey.

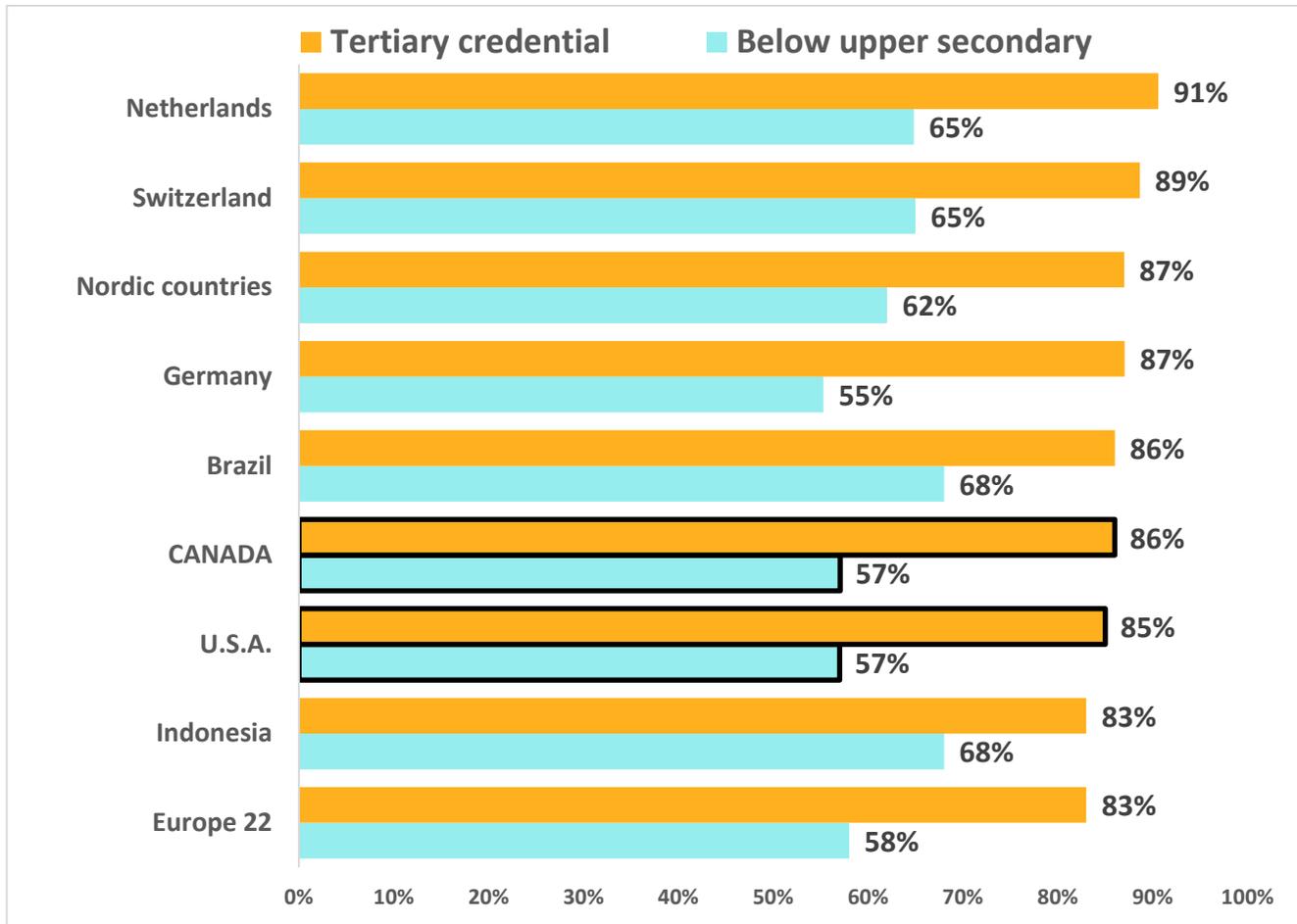
Prepared by Colleges Ontario.



At one time, Ontario was considered to have one of the highest post-secondary completion rates in the world. But when trades credentials are added to the OECD’s “tertiary” education rates for 25- to 34-year-olds, Ontario’s position falls from second to 11<sup>th</sup> place, just ahead of the European average.

In contrast to Europe, Korea and Japan, the U.S. is in 30<sup>th</sup> place and lags in this broader measure of post-secondary educational attainment.

## 5.2 Employment rates of young adults with and without tertiary credentials



Note 1: Selected jurisdictions, ages 25 to 34, 2016.

Note 2: Nordic countries include Denmark, Finland, Iceland, Norway and Sweden.

Note 3: Europe 22 includes Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, the Netherlands, Poland, Portugal, Slovenia, the Slovak Republic, Spain, Sweden and the United Kingdom.

Sources: Education at a Glance 2018: OECD Indicators, OECD Publishing, Paris, table A5.2, trends in employment rates of 25 to 34-year-olds, by educational attainment and gender (2007 and 2017).

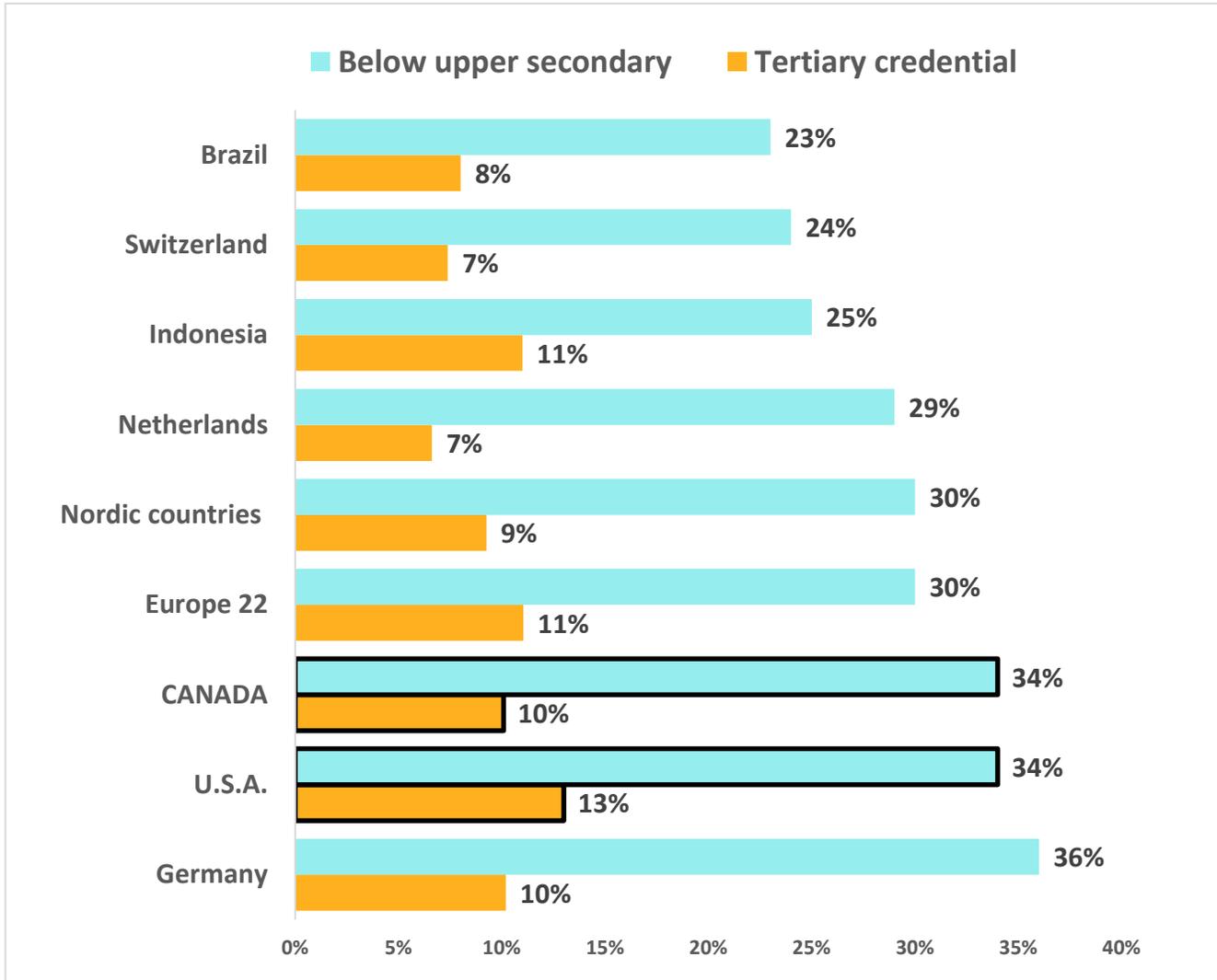
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Workplaces have become more complex the world over, requiring ever more sophisticated and specific skill sets. As a result, in many advanced economies there is a 25 to 35 percentage point difference in employment rates between young adults (ages 25 to 34) with and without post-secondary credentials.

While 85 per cent of those in Canada with a post-secondary credential are employed, only 57 per cent of those without post-secondary credentials are employed.

### 5.3 Inactivity rates of young adults with and without tertiary credentials



Note 1: Selected jurisdictions, ages 25 to 34, 2017.

Note 2: Nordic countries include Denmark, Finland, Iceland, Norway and Sweden.

Note 3: Europe 22 includes Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, the Netherlands, Poland, Portugal, Slovenia, the Slovak Republic, Spain, Sweden and the United Kingdom.

Source: Education at a Glance 2018: OECD Indicators, OECD Publishing, Paris, table A3.3, employment, unemployment and inactivity rates of 25-34 year-olds, by educational attainment (2017).

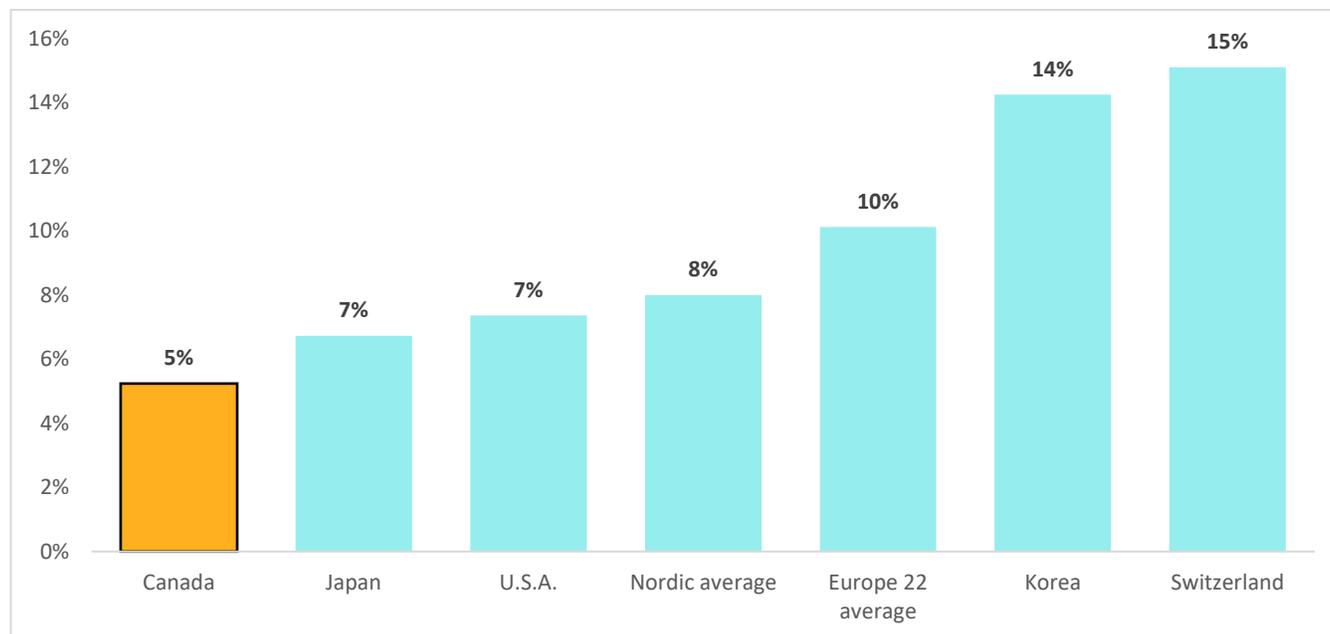
Prepared by Colleges Ontario.



The huge difference in employment rates between those with and without post-secondary credentials is explained mainly by those who are inactive: neither working nor seeking a job.

In Canada, while 10 per cent of those with a post-secondary credential are inactive, a full one-third of those without post-secondary credentials are inactive.

## 5.4 Increasing post-secondary educational attainment



Note 1: Selected jurisdictions, ages 25 to 34, 2007 to 2017.

Note 2: Nordic countries include Denmark, Finland, Iceland, Norway and Sweden.

Note 3: Europe 22 includes Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, the Netherlands, Poland, Portugal, Slovenia, the Slovak Republic, Spain, Sweden and the United Kingdom.

Source: Education at a Glance 2018: OECD Indicators, OECD Publishing, Paris, table A1.2, trends in educational attainment of 25-34 year-olds, by gender (2007 and 2017), percentage of 25-34 year-olds with a given level of education as the highest level attained.

Prepared by Colleges Ontario.



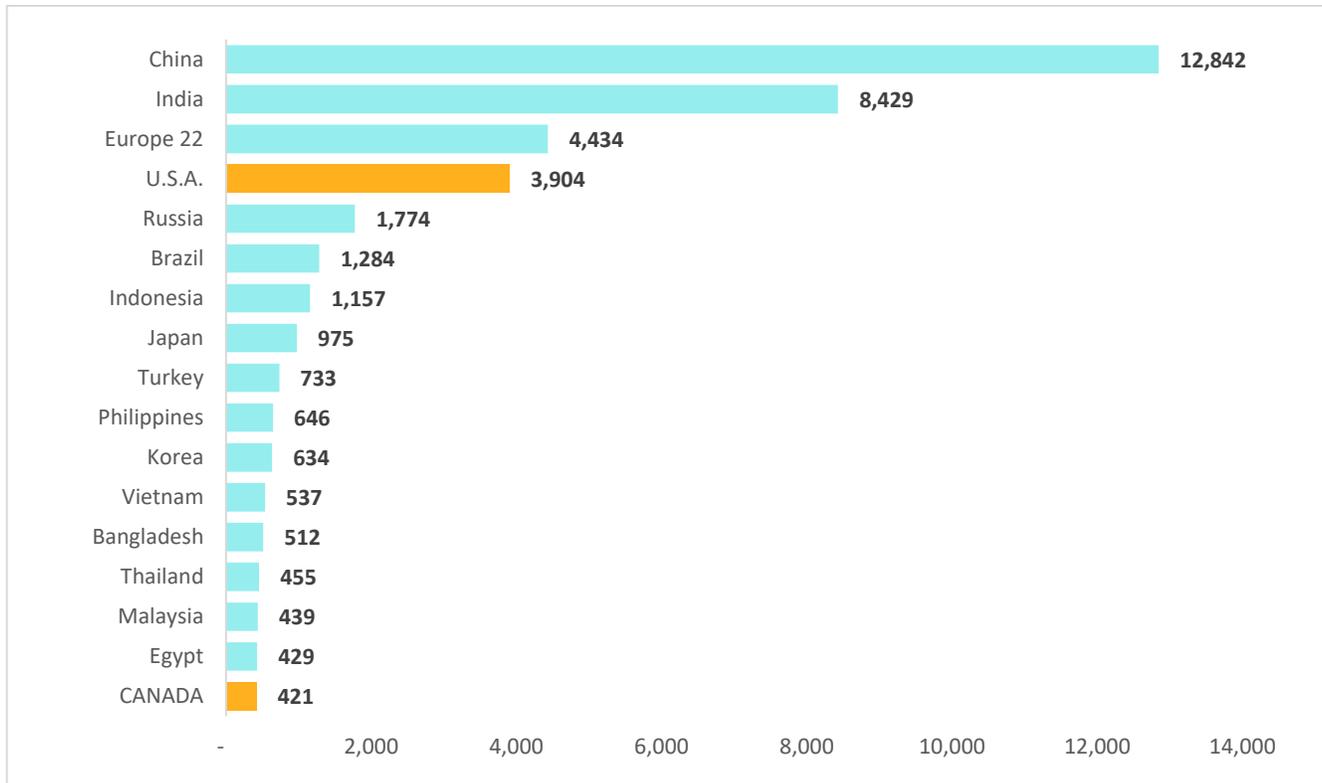
While Canada has been a leader in post-secondary education, other countries have caught up due to active post-secondary policies. This has led to a rapid increase in the numbers of graduates during the past decade.

For example, the European Union believes that higher education and its links with research and innovation play a crucial role in individual and societal development and in providing the highly skilled human capital and the engaged citizens that Europe needs to create jobs, economic growth and prosperity.

Accordingly, the Europe 2020 strategy has set a target that 40 per cent of young Europeans have a higher education qualification by 2020.<sup>2</sup>

<sup>2</sup> [https://ec.europa.eu/education/policies/higher-education/about-higher-education-policy\\_en](https://ec.europa.eu/education/policies/higher-education/about-higher-education-policy_en)

## 5.5 Annual number of tertiary graduates



Note 1: 2017 data, or latest available.

Note 2: Europe 22 includes Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, the Netherlands, Poland, Portugal, Slovenia, the Slovak Republic, Spain, Sweden and the United Kingdom.

Source: UNESCO Institute for Statistics, graduates from tertiary education, both sexes (number).

Prepared by Colleges Ontario.



Both Europeans and North Americans must look to rapid rises in post-secondary education in Asia.

“China has increased the proportion of its college-age population in higher education to over 20 per cent now from 1.4 per cent in 1978. At the same time, China is improving the quality of education through a major effort at school curriculum reform.”<sup>3</sup>

In comparison with the U.S.A.’s four-million annual post-secondary graduates and Europe’s 4.5 million, China now has 13 million graduates annually, and India 8.4 million.

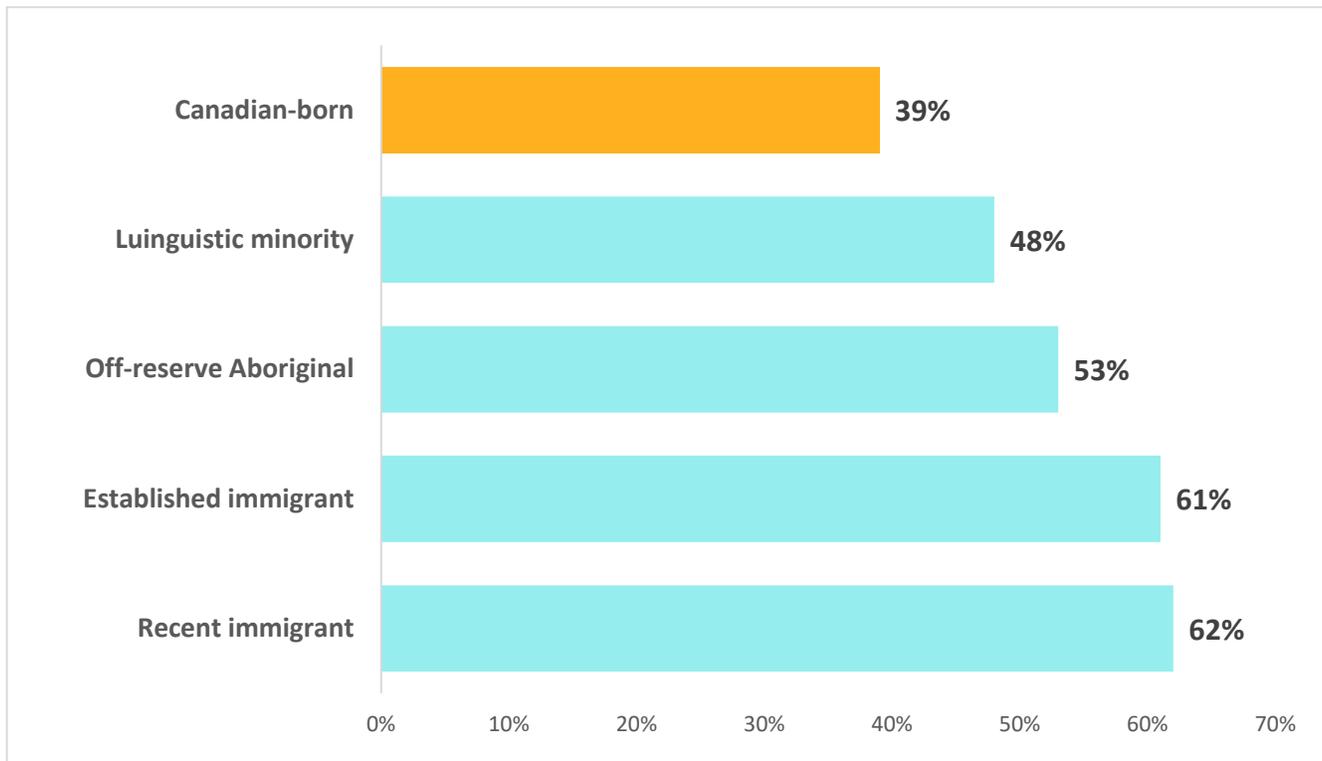
Canada produces about 420,000 post-secondary graduates annually, or about one per cent of the world’s total.

Canada and other advanced countries can no longer compete on numbers of graduates. They can maintain a high standard of living only if their post-secondary graduates receive the highest quality education, incorporating innovation and entrepreneurship along with state-of-the-art skills that enable their employers to compete in the world economy.

<sup>3</sup> China Education Center. <https://www.chinaeducenter.com/en/cedu.php>

## 6 ENCOURAGING UNDER-REPRESENTED STUDENTS AND CLOSING THE SKILLS GAP

### 6.1 Adult literacy and numeracy rating for selected Ontario populations



Note: Per cent scoring at or below level 2 in literacy and numeracy, 2012.

Source: Statistics Canada, table 477-0087, literacy and numeracy, average scores and distribution of proficiency levels, by Aboriginal (off-reserve), immigrant or minority language status, by sex, population ages 16 to 65, selected provinces and territories, 2012.

Prepared by Colleges Ontario.



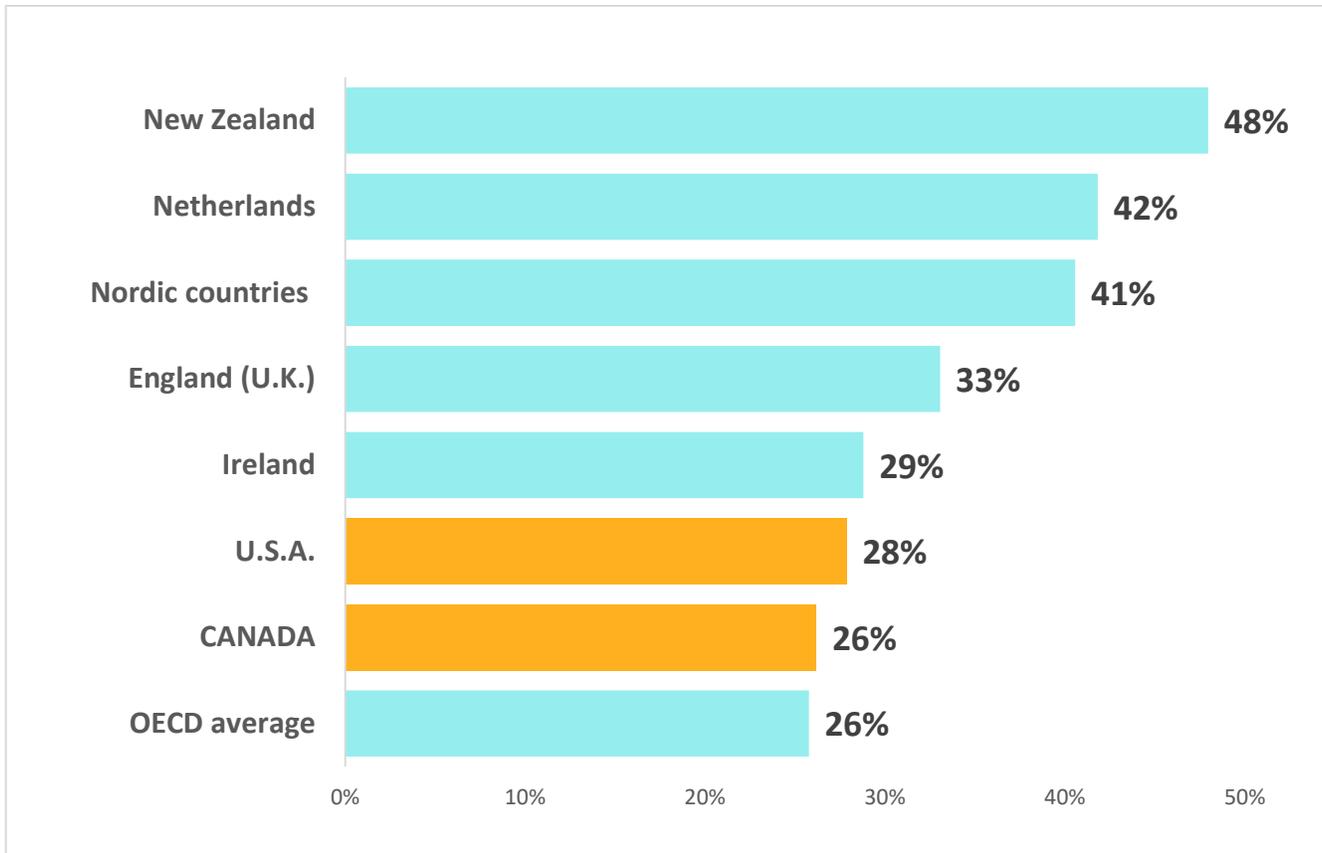
In Canada, close to half the population scores at or below level 2 in literacy and numeracy,<sup>4</sup> a level considered minimal for success in the workforce.

About two in five Canadian-born adults have only level 2 or lower levels of literacy and numeracy. Many of these individuals may experience difficulties in their careers.

Adults from under-represented groups are much more likely than Canadian-born adults to have lower levels of literacy and numeracy than are often required for effective participation in today's workforce.

<sup>4</sup> At Level 2 in mathematics, for example, students can interpret and recognize situations in contexts that require no more than direct inference. They can extract relevant information from a single source and make use of a single representational mode. Students at this level can employ basic algorithms, formulae, procedures or conventions. They are capable of direct reasoning and making literal interpretations of the results.

## 6.2 Job-related education for adults without upper secondary credentials



Note 1: Annual participation rates, selected countries.

Note 2: Nordic countries include Denmark, Finland, Norway and Sweden.

Source: Education at a Glance 2016: OECD Indicators, OECD Publishing, Paris, table C6.3 (web only), participation in formal and/or non-formal education, by literacy proficiency level and educational attainment (2012 or 2015).

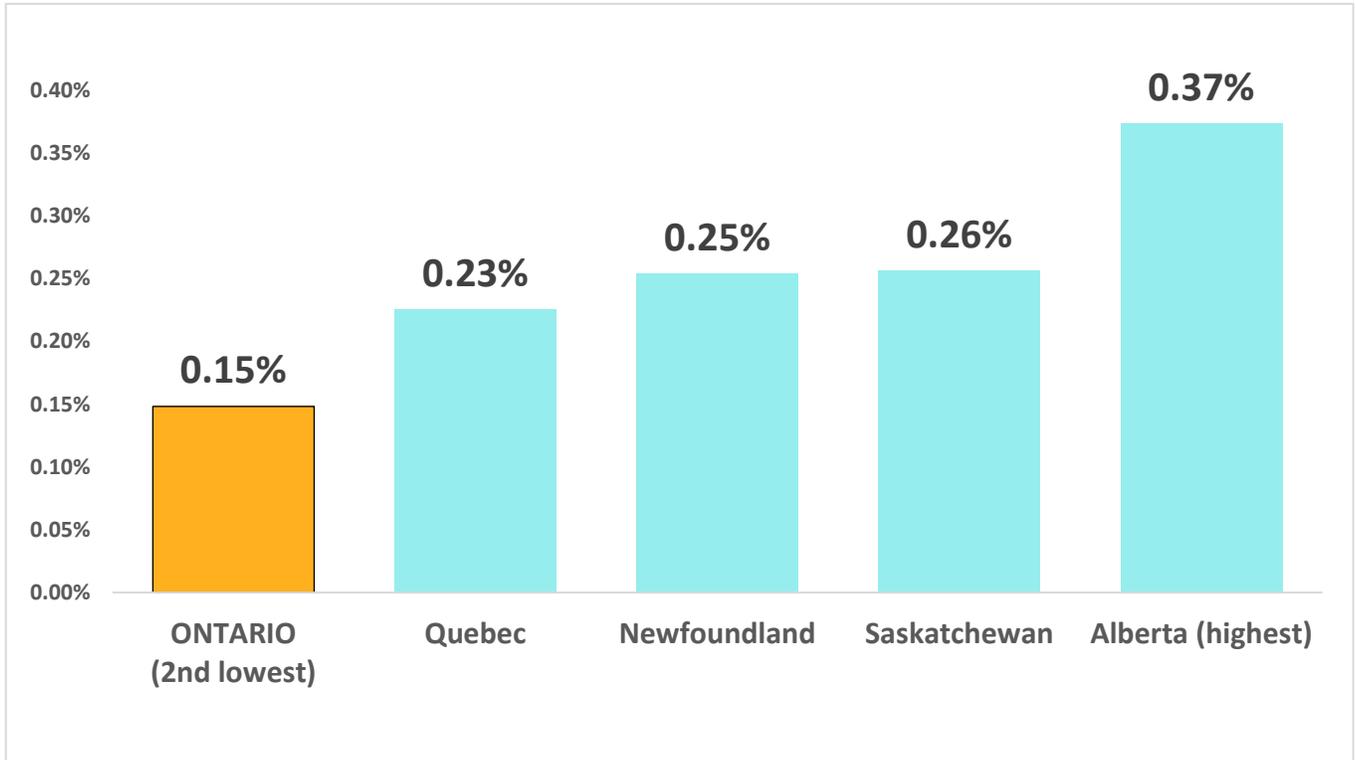
Prepared by Colleges Ontario.



Several countries, notably New Zealand, the Netherlands and the Nordic countries are well ahead of other advanced economies in providing retraining to older workers who don't have educational credentials.

In comparison, the U.S. and Canada are at the OECD average.

### 6.3 Certification of tradespersons, Ontario vs. selected provinces



Note 1: Apprentices who passed their certificates of qualification examinations in 2017.

Note 2: Newly certified tradespersons as a per cent of total employment.

Source: Based on Statistics Canada tables 37-10-0024-01 and 14-10-0018-01.

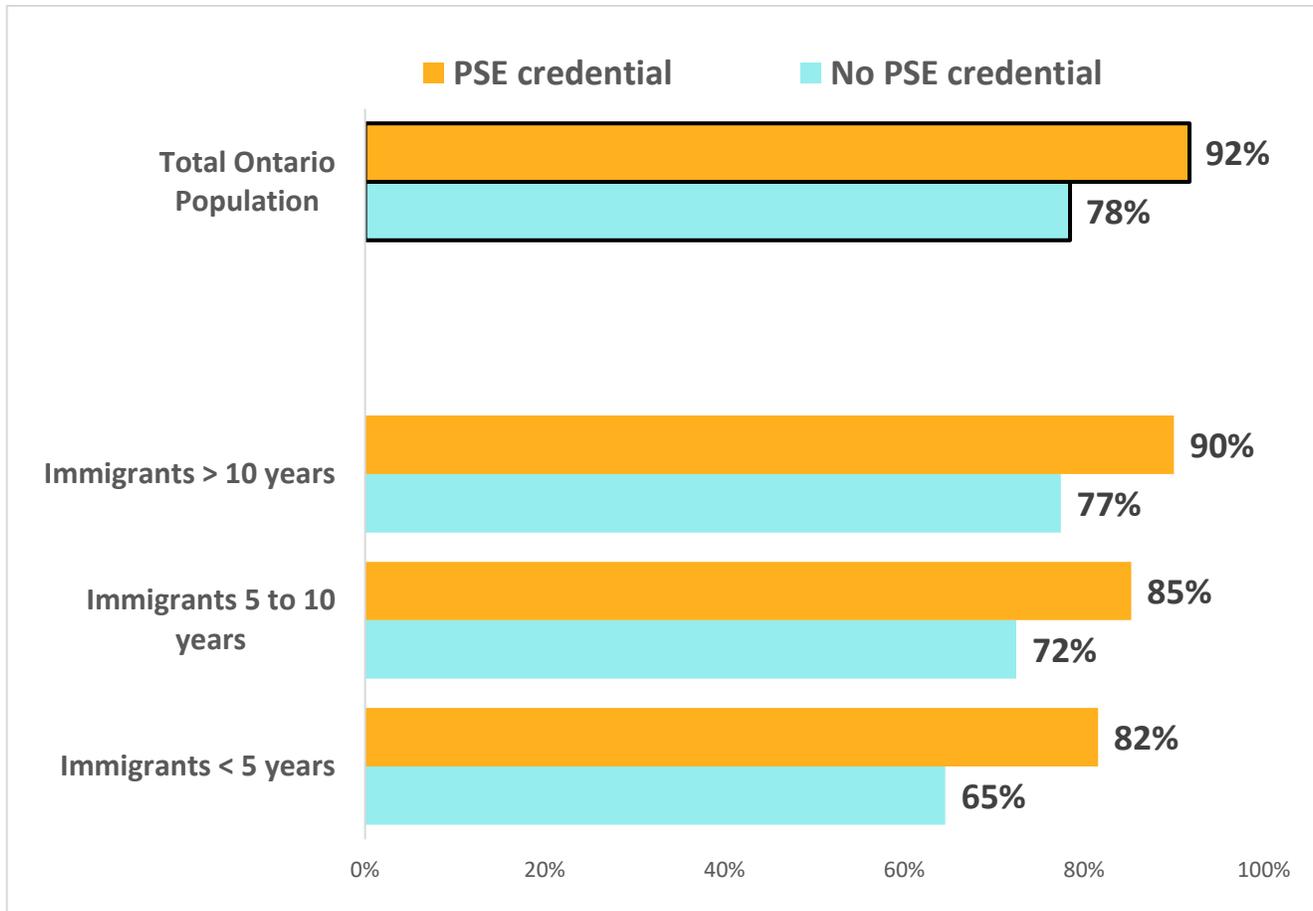
Prepared by Colleges Ontario.



Apprenticeship is an important type of adult education in Canada as the average age of entry is 27.

Apprenticeship completions were especially high in Quebec, Newfoundland, Saskatchewan and Alberta.

## 6.4 Employment rates for young immigrants by educational attainment



Note: Ontario, ages 25 to 34.

Source: Based on a special tabulation of the 2016 Statistics Canada census.

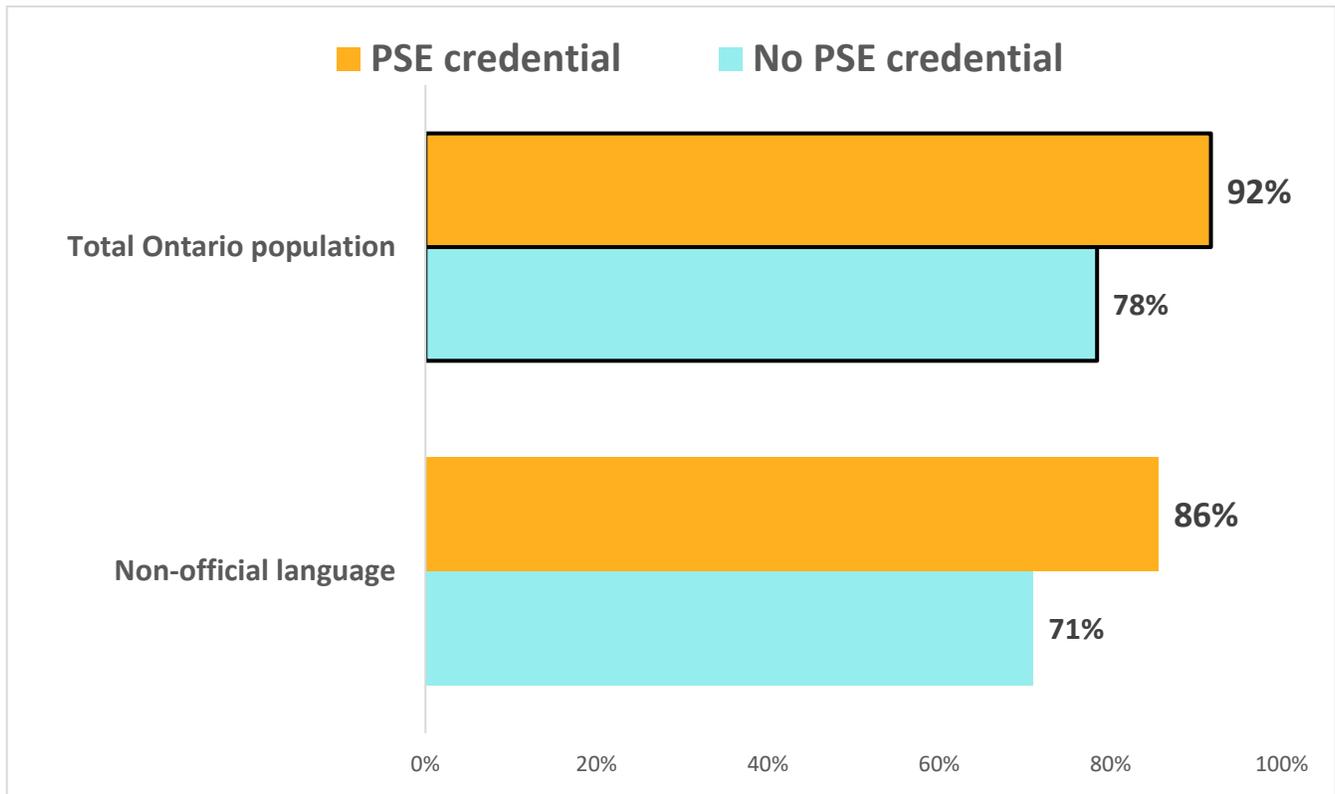
Prepared by Colleges Ontario.



Immigrants (ages 25 to 34) generally experience lower employment rates than the overall Ontario population, even when educational attainment is taken into account. The difference is especially great for immigrants who have been in Canada less than five years.

However, once the immigrants have been in Canada at least 10 years, employment rates are almost the same as for all Ontarians with comparable post-secondary credentials.

## 6.5 Employment rates for young adults with a non-official mother tongue by educational attainment



Note: Ontario, ages 25 to 34.

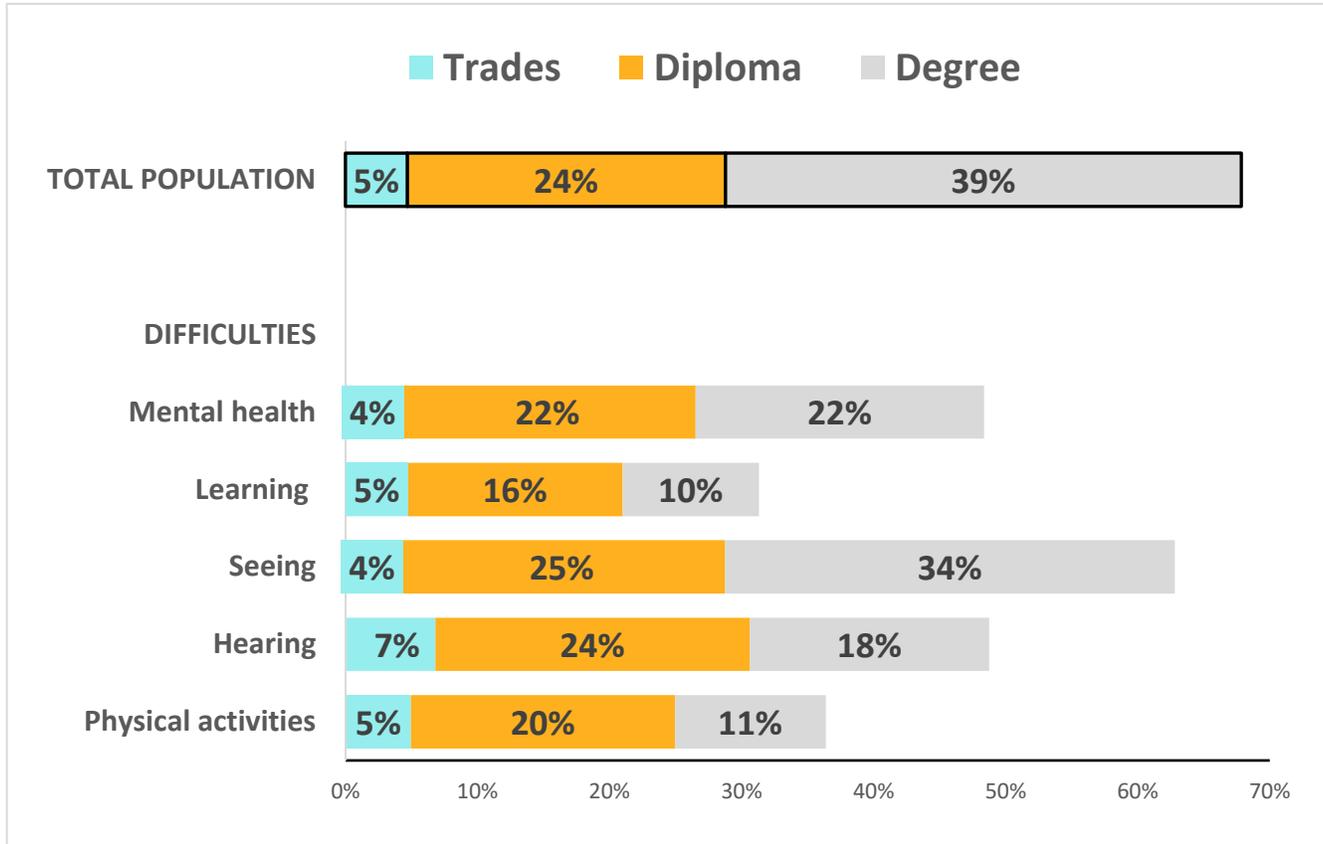
Source: Based on a special tabulation of the 2016 Statistics Canada census.

Prepared by Colleges Ontario.



Young adults (ages 25 to 34) whose mother tongue is not English or French are less likely to be working than those with comparable educational attainment whose mother tongue is an official language.

## 6.6 Educational attainment for young adults with and without disabilities



Note: Ontario, ages 25 to 34.

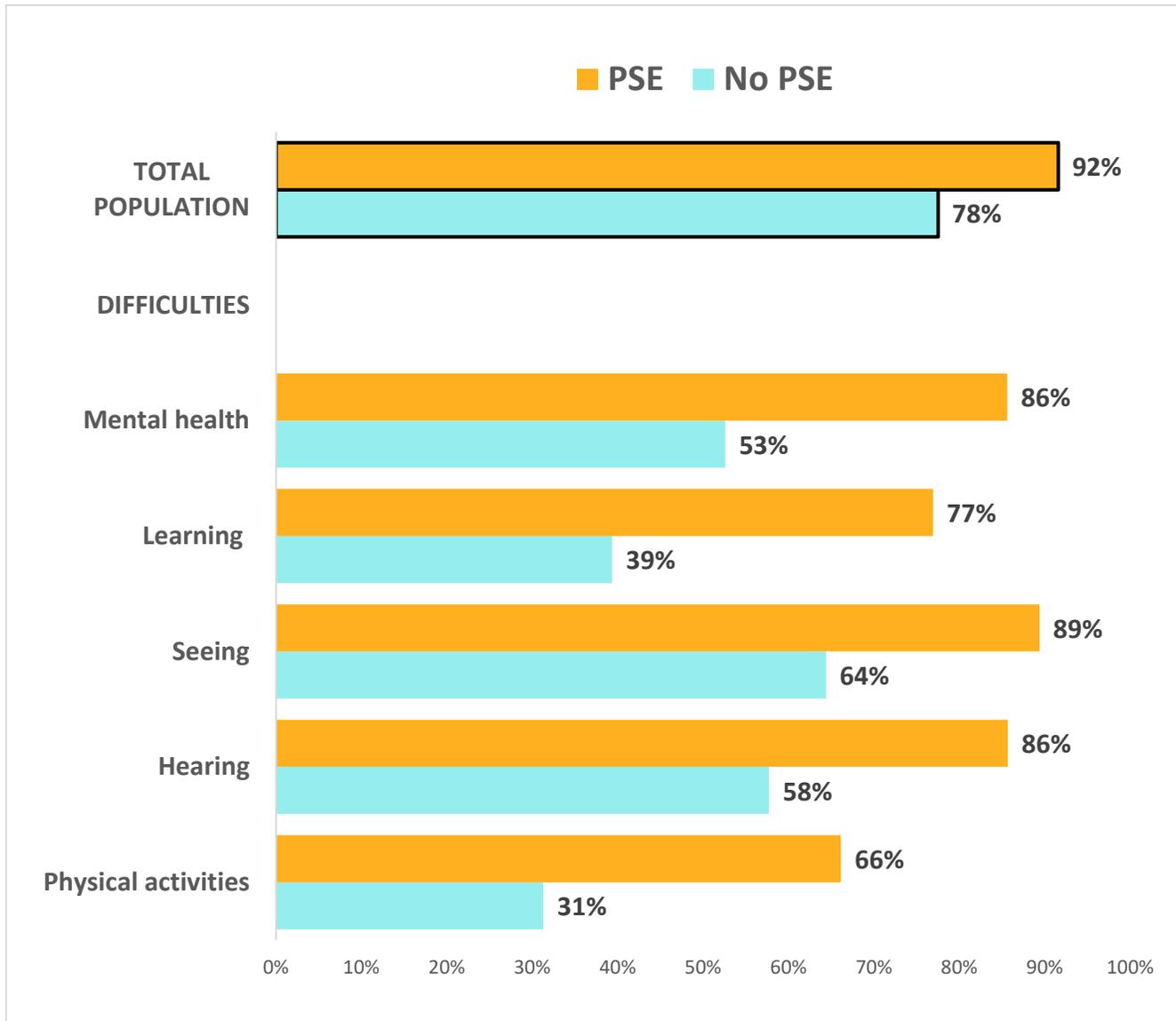
Source: Based on a special tabulation from the 2016 Statistics Canada census.

Prepared by Colleges Ontario.



Young adults (ages 25 to 34) with disabilities are significantly less likely to have completed a post-secondary credential – especially a degree – than those without reported disabilities. The data include individuals who reported experiencing one of the listed difficulties ‘often’ or ‘always.’

## 6.7 Employment rates for young adults with and without disabilities



Note: Ontario, ages 25 to 34.

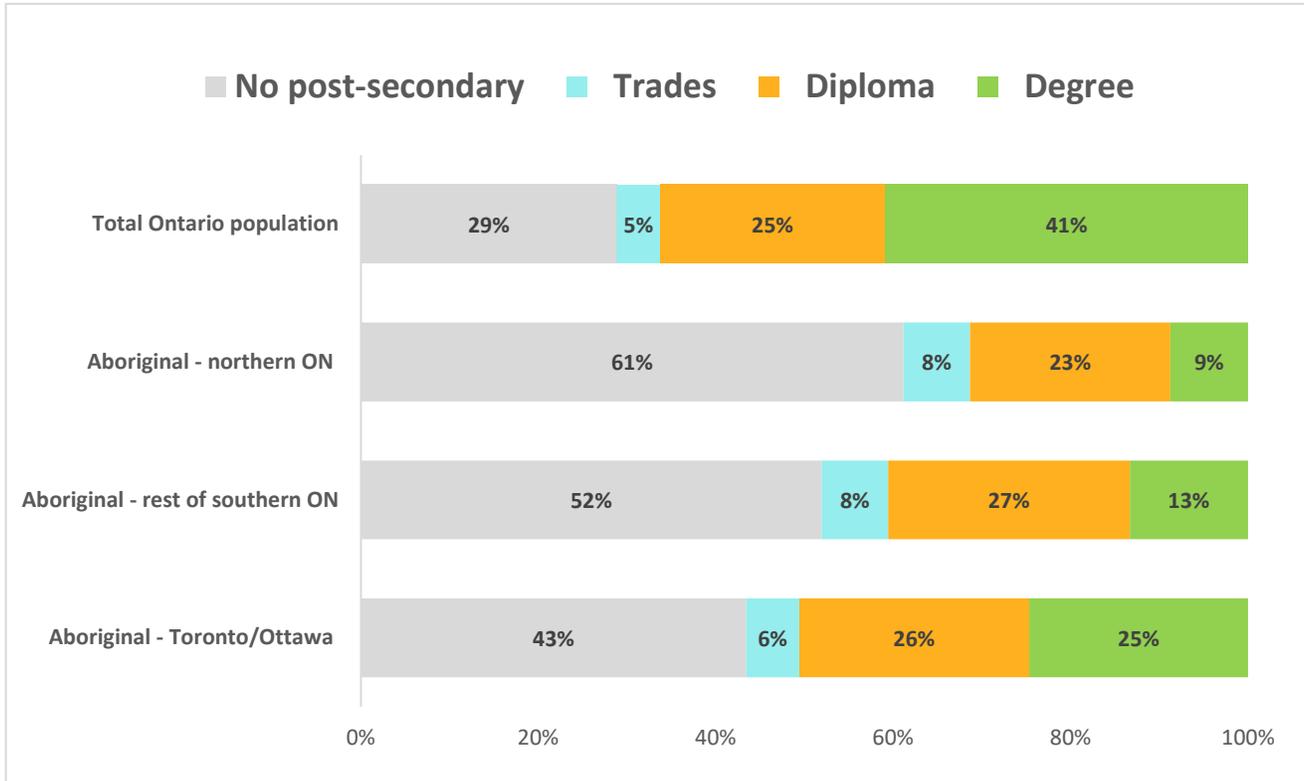
Source: Based on a 2016 Statistics Canada Census special tabulation.

Prepared by Colleges Ontario.



Young adults (ages 25 to 34) reporting disabilities ‘often’ or ‘always’ are less likely to be employed than those without disabilities who have attained a comparable education.

## 6.8 Educational attainment of young Aboriginals



Note: Ontario, ages 25 to 34.

Source: Based on a special tabulation from the 2016 Statistics Canada census.

Prepared by Colleges Ontario.

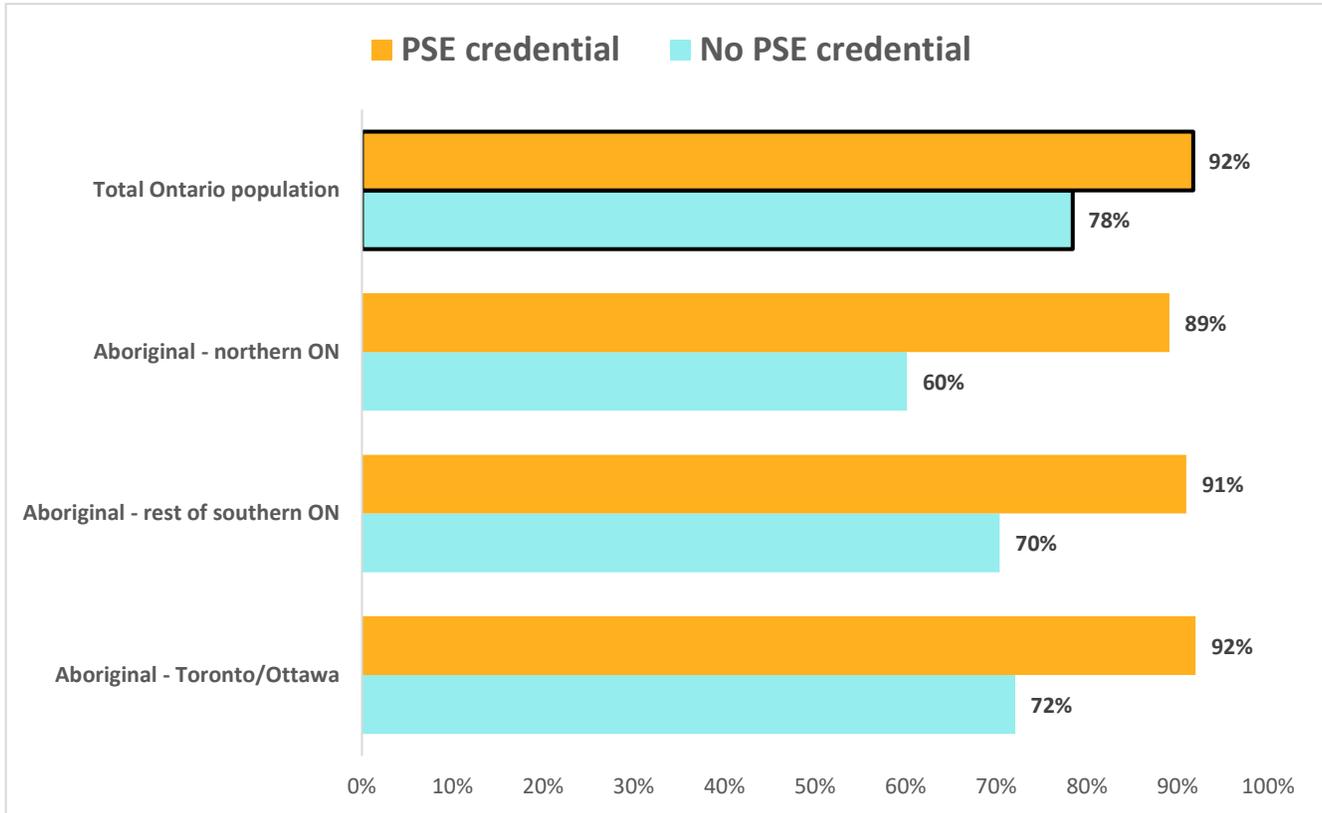


Young adults reporting as Aboriginal are at least as likely as other young Ontarians to have completed a post-secondary diploma or a trade certificate.

However, they are only about one-third as likely to have completed a degree.

Young adults reporting as Aboriginal located in Toronto or Ottawa have higher educational attainment compared with the rest of Ontario.

## 6.9 Employment rates by educational attainment for young Aboriginals



Note: Ontario, ages 25 to 34.

Source: Based on a special tabulation of a 2016 Statistics Canada census.

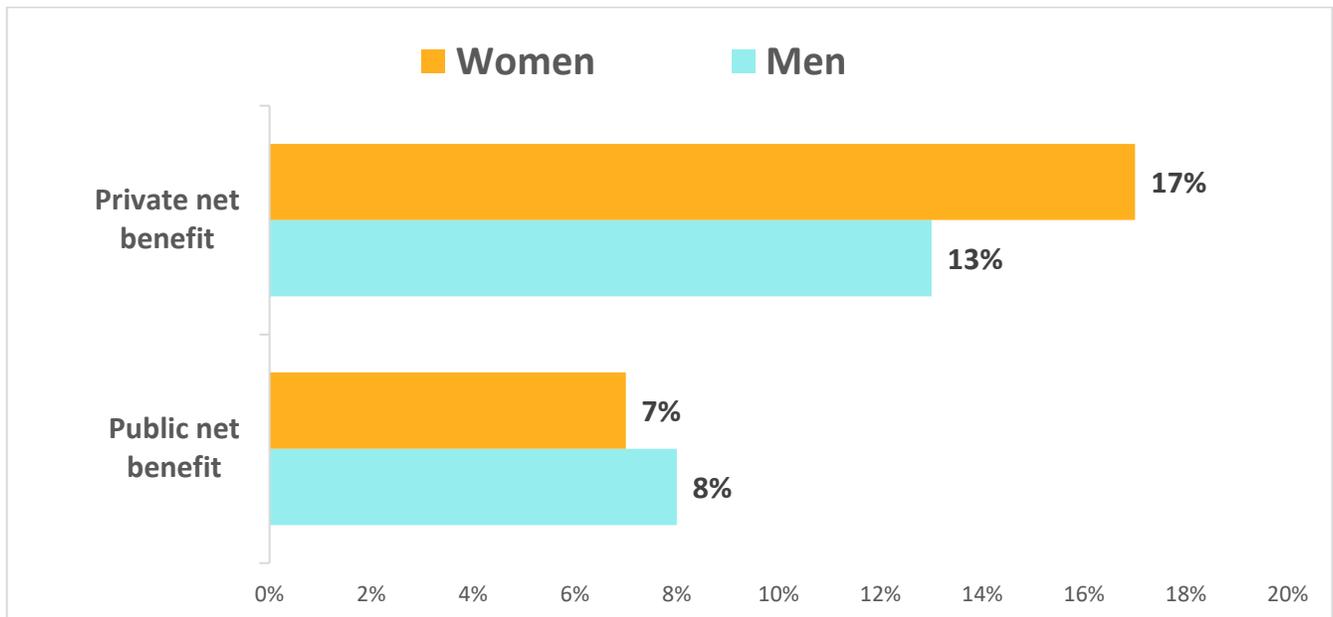
Prepared by Colleges Ontario.



Young adults reporting as Aboriginal with post-secondary credentials are almost as likely as other young Ontarians to be employed.

However, those who do not have a post-secondary credential are significantly less likely to be employed, especially in northern Ontario.

## 7 BENEFITING FROM A HIGH RETURN ON INVESTMENT IN SKILLS



Note 1: Net benefits are calculated as an internal rate of return, per cent, 2015.

Note 2: These data exclude OECD-defined “post-secondary non-tertiary,” i.e., post-secondary programs of one year or less, primarily apprenticeship programs, which are included in Statistics Canada post-secondary data.

Source: Education at a Glance 2018: OECD Indicators, OECD Publishing, Paris. tables A7.3a, A7.3b, A7.4a and A7.4b.

Prepared by Colleges Ontario.



The OECD states that:<sup>5</sup>

- “Individuals completing tertiary education benefit from substantial returns on investment: they are more likely to be employed and earn more than individuals without tertiary education do.
- “The public also benefits from a large proportion of tertiary-educated individuals through greater tax revenues and social contributions.”

For Canada as a whole, the OECD calculates that individuals receive roughly a 15 per cent rate of return while governments receive seven per cent on their investments in post-secondary education.

Another study<sup>6</sup> concluded that Ontario college students receive an internal rate of return of 14 per cent for the time and money they invest in an education, while the Ontario government receives an internal rate of return of 20 per cent. A third study<sup>7</sup> that focused on special programs for at-risk students at Ontario colleges concluded that the returns to students and Ontario government were 11 per cent and 14 per cent respectively for these programs alone.

<sup>5</sup> Education at a Glance 2014: OECD Indicators, OECD Publishing, Paris, page 150.

<sup>6</sup> Economic Modeling Specialists Intl., Demonstrating the Value of the Ontario College Sector: Analysis of the Economic Impact and Return on Investment of Education, 2014, page 11.

<sup>7</sup> Deloitte, Breaking Down Barriers to Student Success: Expanding a High-Performance Workforce, 2012, page 2.